Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A communications device, comprising:

a substrate having an input and an output that are capable of being connected to a communications network;

a relay, disposed on said substrate and connected between said input and said output of said substrate, said relay capable of being closed when substantially zero volts is applied to said relay; and

a switchable termination resistor having a switch component and a resistor component, disposed on said substrate and coupled to said input of said substrate, having an impedance capable of providing a termination for an external circuit that is disposed external to said substrate, said external circuit also connected to said input of said substrate;

wherein said relay is closed and said switch component is open when no power is applied to the communications device; and

wherein said relay is open-circuited and said switch component is closed when power is applied to the communications device.

2. (Original) The communications device of claim 1, wherein said relay includes a native field effect transistor (FET) having a source and a drain, said input to said substrate connected to one of said source and said drain, and said output connected to the other of said source and said drain.

3. (Original) The communications device of claim 2, wherein said native FET is conductive when approximately zero volts is applied to a gate of said native FET device.

4. (Original) The communications device of claim 3, further comprising a rectifying circuit, an input of said rectifying circuit coupled to said input of said external circuit and an output of said rectifying circuit connected to said gate of said native FET, said rectifying circuit configured to rectify an input signal received at said input of said

external circuit and produce a rectified voltage that is applied to said gate of said native FET.

5. (Original) The communications device of claim 4, wherein said rectifying circuit includes a second native FET having one of a source and a drain coupled to an input of said external circuit, and the other of said source and said drain coupled to said gate of said native FET, a gate of said second native FET also coupled to said input of said substrate.

6. (Original) The communications device of claim 5, further comprising a gate grounding device coupled to a gate of said second native FET, said gate grounding device capable of grounding said gate of said second native FET when a voltage is applied to said substrate.

7. (Original) The communications device of claim 6, wherein said gate grounding device includes a FET, a gate of said FET coupled to said voltage applied to said substrate, a drain of said FET coupled to a gate of said second native FET, and a source of said FET coupled to ground.

8. (Original) The communications device of claim 4, further comprising a switch connected in series between said output of said rectifying circuit and said gate of said native FET, said switch capable of disconnecting said rectifying circuit from said gate of said native FET when a voltage is applied to said substrate.

9. (Original) The communications device of claim 4, further comprising a gate grounding device coupled to a gate of said native FET, said gate grounding device grounding said gate of said native FET when a voltage is applied to said substrate.

10. (Original) The communications device of claim 9, wherein said gate grounding device includes a FET, a gate of said FET coupled to said voltage applied to said substrate, a drain of said FET coupled to a gate of said native FET, and a source of said FET coupled to ground.

11. (Original) The communications device of claim 1, wherein said switchable termination resistor includes a switch in series with a resistor, said resistor determined to provide a desired impedance for said external circuit when said switch is closed.

12. (Original) The communications device of claim 11, wherein said desired impedance causes said external circuit to have a substantially constant input impedance.

13. (Original) The communications device of claim 10, wherein said external circuit is a filter.

14. (Original) The communications device of claim 1, wherein said communications network is an internet protocol (IP) telephone network.

15. (Previously Presented) A communications device, comprising:

a substrate having a differential input and a differential output that are capable of being connected to a communications network;

a differential filter, external to said substrate, and coupled to said differential input;

a termination, disposed on said substrate and across a differential output of said differential filter, said termination adapted to provide a constant input impedance at an input of said differential filter; and

a differential relay, disposed on said substrate and connected between said differential input and said differential output of said substrate, said differential relay including first and second native FETs that have a threshold voltage of approximately zero volts.

16. (Original) The communications device of claim 15, wherein said termination is a switchable termination having at least one resistor and a switch that is connected in series with said resistor.

17. (Original) The communications device of claim 16, wherein said switch is closed when voltage is applied to said substrate.

18. (Original) The communications device of claim 15, further comprising a rectifying circuit connected between an input of said differential filter and a gate of said first native FET, said rectifying circuit capable of increasing a voltage on a gate of said first native FET based on signal received at said input of said differential filter.

19. (Original) The communications device of claim 18, further comprising a FET switch connected between said rectifying circuit and said gate of said first native device, said FET switch configured to open when a supply voltage is applied to said substrate.

20. (Original) The communications device of claim 15, further comprising a means for grounding a gate of said first native FET and a gate of said second native FET, when a supply voltage is applied to said substrate.

21. (Original) The communications device of claim 20, wherein said means for grounding comprises a FET switch having a drain coupled to said respective gates of said first native FET and said second native FET, a source of said FET switch connected to ground, and a gate of said FET switch connected to said supply voltage.

22. (Previously Presented) An internet protocol (IP) telephone, comprising:

a substrate having a differential input and a differential output that are capable of being connected to a communications network;

a differential filter, external to said substrate, and coupled to said differential input;

a termination, disposed on said substrate and across a differential output of said differential filter, said termination adapted to provide a constant input impedance at an input of said differential filter; and

a differential relay, disposed on said substrate and connected between said input and said output of said substrate, said differential relay including first and second native FETs that have a threshold voltage of approximately zero volts.

23. (Previously Presented) An internet protocol (IP) telephone, comprising:

a substrate having a differential input and a differential output that are capable of being connected to an internet protocol (IP) network;

a differential filter, external to said substrate, and coupled to said differential input;

a termination, disposed on said substrate and across a differential output of said differential filter, said termination adapted to provide a constant input impedance at an input of said differential filter;

a differential relay, disposed on said substrate and connected between said input and said output of said substrate, said differential relay including first and second native FETs that have a threshold voltage of approximately zero volts;

means for rectifying an input signal received at said input of said differential filter to produce a rectified signal that is applied to a gate of said first native FET and a gate of said second native FET; and

means for grounding said gate of said first native FET and said gate of second native FET when a supply voltage is applied to said substrate.

24. (Original) The IP telephone of claim 23, wherein said threshold voltage is approximately between –100mV and +100mV.

25. (Original) The IP telephone of claim 23, wherein said means for rectifying comprising:

a third native FET having one of a source and drain coupled to said input of said differential filter, and the other of said source and said drain coupled to a gate of said first native FET; and

a fourth native FET having one of a source and drain coupled to said input of said differential filter, and the other of said source and said drain coupled to a gate of said second native FET.

26. (Original) The IP telephone of claim 25, further comprising a means for grounding a gate of said third native device and a means for grounding a gate of said fourth native device.

27. (Currently Amended) A communications device, comprising:

a substrate having an input and an output that are capable of being connected to a communications network;

a filter, external to said substrate, and coupled to said input;

a switchable termination, disposed on said substrate and across an output of said filter, said termination adapted to provide a constant input impedance at an input of said filter; and

a relay, disposed on said substrate and connected between said input and said output of said substrate, said relay including first and second native FETs that have a threshold voltage of approximately zero volts.

28. (Original) The communications device of claim 27, wherein said termination is a switchable termination having at least one resistor and a switch that is connected in series with said resistor.

29. (Original) The communications device of claim 28, wherein said switch is closed when voltage is applied to said substrate.

30. (Original) The communications device of claim 27, further comprising a rectifying circuit connected between an input of said filter and a gate of said first native FET, said rectifying circuit capable of increasing a voltage on a gate of said first native FET based on signal received at said input of said filter.

31. (Original) The communications device of claim 30, further comprising a FET switch connected between said rectifying circuit and said gate of said first native device, said FET switch configured to open when a supply voltage is applied to said substrate.

32. (Original) The communications device of claim 27, further comprising a means for grounding a gate of said first native FET and a gate of said second native FET, when a supply voltage is applied to said substrate.

33. (Original) The communications device of claim 32, wherein said means for grounding comprises a FET switch having a drain coupled to said respective gates of said first native FET and said second native FET, a source of said FET switch connected to ground, and a gate of said FET switch connected to said supply voltage.

34. (Currently Amended) A communications device, comprising:

a substrate having an input and an output connectable to a communications network;

a relay, disposed on said substrate and connected between said input and said output of said substrate, said relay is substantially closed when no power is applied to said substrate and is substantially open-circuited when power is applied to said communications device; and

a switchable termination resistor, disposed on said substrate and coupled to said input of said substrate, having an impedance that provides a termination for an external circuit that is disposed external to said substrate, said external circuit also connected to said input of said substrate.

35. (Previously Presented) The communications device of claim 34, wherein said substrate is a portion of a physical layer of said communications device, so that said relay is substantially closed when no power is applied to said physical layer.

36. (Previously Presented) The communications device of claim 34, wherein said physical layer is a portion of an internet protocol (IP) telephone.